

User Manual

(UDTTV02 GPS Tracker) v2.1



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Introduction

UDTTV02 GPS/GSM Tracker is a compact vehicle remote positioning device with built-in GPS and GSM/GPRS. The device can transmit the longitude and latitude coordinates to your cell phone by SMS. User can make use of the coordinates to find GPS Location using Google Maps or other map software. Besides, the tracker can also capable of sending GPS data to a designated server via GPRS connection, allowing user to do web-based real-time monitoring, real-time tracking and historical playing back.

Applications

UDTTV02 GPS/GSM vehicle tracker comes complete with built-in GPS receiver, GPS antenna and connecting cables. Typically, our trackers are installed in cars, motorcycles, scooters and boats.




Caution

Please read this handbook carefully before using the tracker

The pictures shown in this user manual may be different from the actual products. Please consult our representatives for clarifications.

Technical Specifications

- **Key Features:**

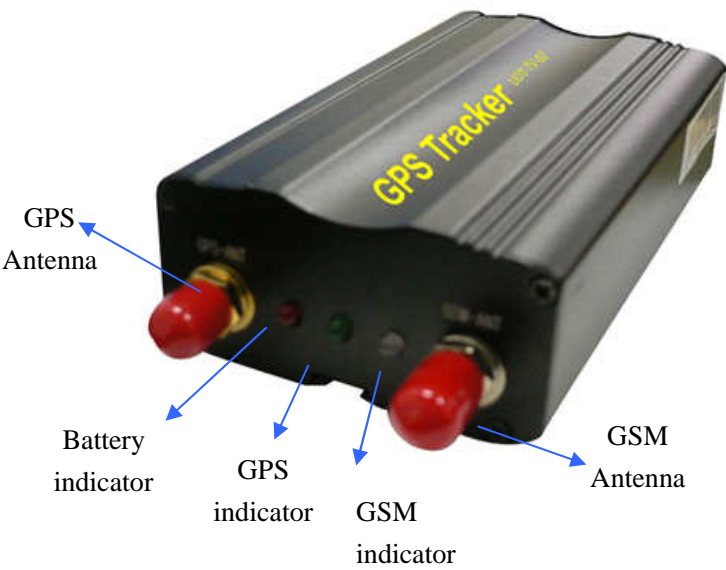
- External SIRF Star III/ JRC Chipset, excellent for fixing GPS position even with weak signal status. Work well under bad weather condition.
- Built-in GSM/GPRS module, support Two or Quad band GSM 900/1800 MHz (850/1900 Optional)
- Support SMS communication or GPRS TCP connection.
- Get the position information via mobile phone SMS, log on to server for tracking via GPRS
- Alarm alert through SOS button, send out GPS location for immediate rescue/action.
- Portable, compact in size.
- Low power consumption. As it automatically turns off GPS if a vehicle is detected in static mode for 5 minutes.
- Immobilize vehicle by SMS command.
- Support Geo-fence.
- Built in rechargeable battery, allowing tracker to continue functioning for up to 5 hours if external power source is discontinued.
- Automatic ACC detection. The built-in battery will not be re-charged whenever engine is switched off, whereby prolonging vehicle battery life.
- Data logger function 
- Track by SMS with Goggle Maps URL link 
- Tow Alarm 

- **Specifications**

GSM module	MTK program, GSM 900/1800/850/1900 dual-band or quad-band Support the TCP protocol
GPS Chipset	JRC/SIRF III high sensitive chipset
GPS sensitivity	-164dB
C/A Code	1.023MHz chip rate
Channels	20 channel all-in-view tracking
GPS frequency	L1,1575.42MHz
GPS Position Accuracy	2.5 meters, CEP
Velocity Accuracy	0.1m/s
Time Accuracy	Synchronized to GPS time
Default datum	WGS-84
Hot start	1sec.,average
Warm start	30 seconds (average)
Cold Start	35 seconds (average)
Altitude Limit	18,000 meters (60,000feet) max.

Operating temperature	-20°C—65°C
Humidity	5%To 95% Non-condensing
Dimension	88mm×46mm×18mm
Voltage	12V-24V
Average Current When stand-by	<84mA

Interface & LED



● LED Status

Blue LED: GSM signal status

Status	Description
Flashes every 8s	GSM network stand by
Flashes every 1 sec	No GSM network or SIM card not detected

Red LED: Battery status

Status	Description
Light ON	Battery in normal charging mode
Light OFF	Battery is fully charged

Green LED: GPS signal status

Status	Description
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Light OFF	GPS signal not detected
Keeps flashing	Satellites found. GPS is receiving Data

Installation

Please read this manual before you carry hardware installation. If you have doubts, please contact your local representations for help.

● Package Contents:

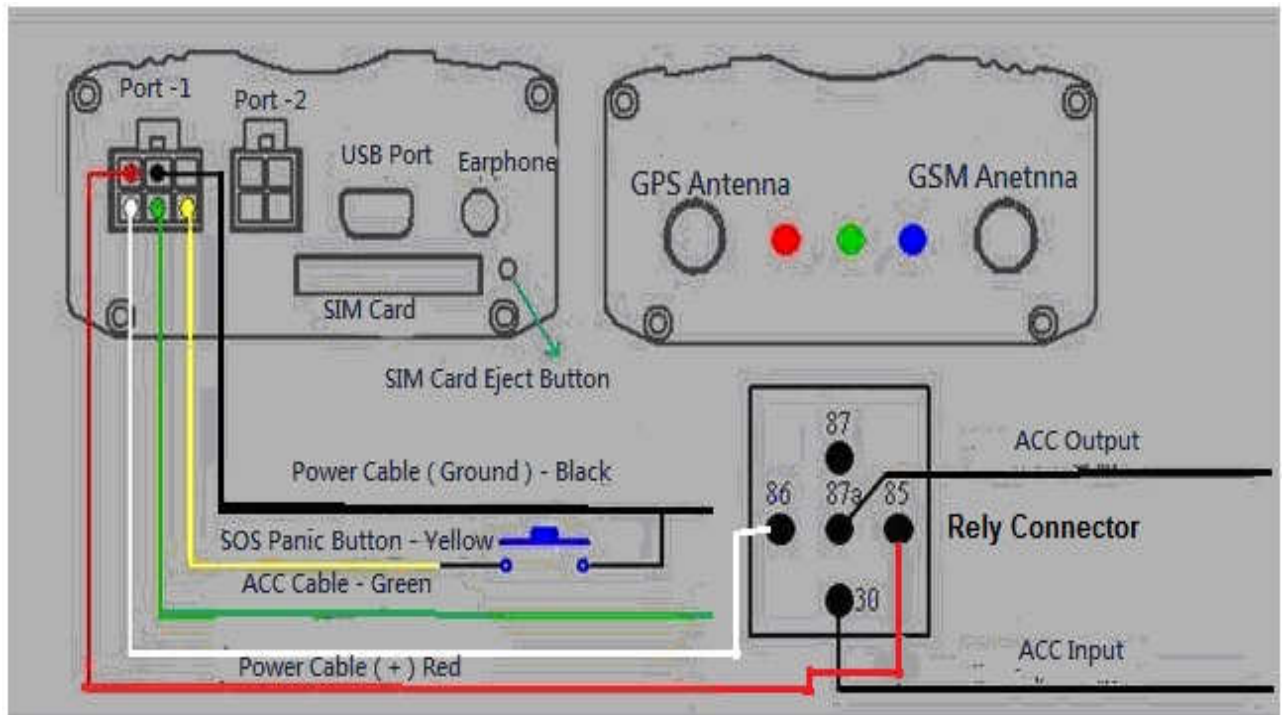
- a) 1 x UDTTV02 GPS/GSM Vehicle Tracker
- b) 1 x Power cable
- c) GPS Antenna x 1
- d) GSM Antenna x 1
- e) 1 x SOS button
- f) Earphone & Microphone x 1

● Basic Steps:

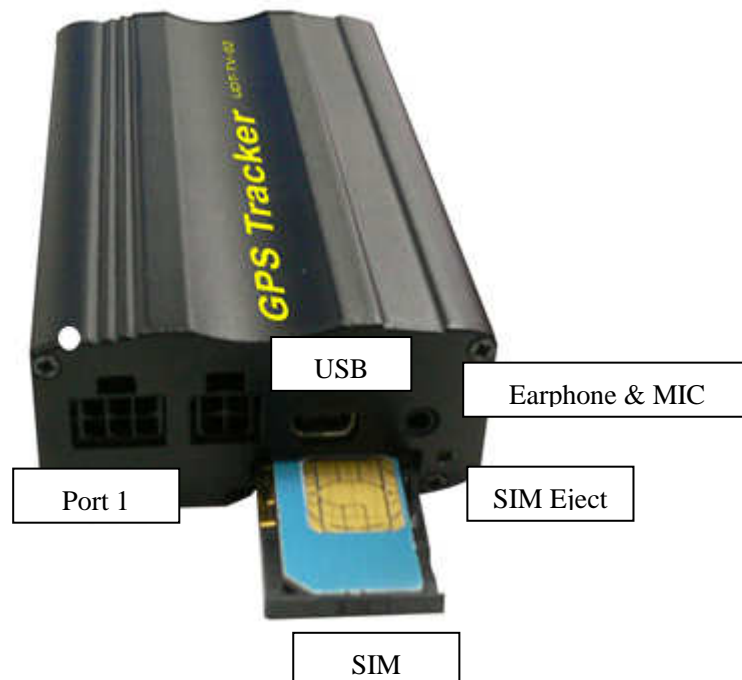
1. Eject SIM card holder, insert SIM card into SIM holder.
2. Connect GSM and GPS antenna
3. Connect the **“5-cable- 6pin” connector** to Port 1 (A 6 pin socket)

Port 1 – Color Representation for Cables:

- Red** : (+) 12V/24V
- Black** : Ground (-)
- Yellow** : SOS button (-) Connect other side of switch to ground (-)
- White** : Engine immobilizer (-) (optional connection)
- Green** : ACC detection. Battery in tracker will not be re-charged as soon as external power source is discontinued



Circuit Layout



Note: A 4-input Port beside "Port 1" is a reserved port, not used.

Quick start guideline

● GPS Tracking by SMS:

1. Put in SIM card and install device properly.
2. Set up a *controller phone number*, by sending an SMS command format:
controller mobile phone number*0000*1*.

For example, ***12345678*0000*1****.

"12345678" is the **controller phone number** which is used to configure the tracker

"0000" is default user password

"1" is one of the 3 authorized *controller phone numbers* currently defined.

*** The GPS Tracker will only accept SMS commands sent from any of the 3 controller phone numbers.**

3. Now, try requesting GPS URL location by sending an SMS command: **6680000**

You should get a reply with a web link (URL link).

By clicking on the link, you will find a Google Maps GPS location shown on your GPRS enabled Mobile Phone, as below:



4. By sending an SMS command: **6660000**, you will get GPS Data information such as GPS Longitude and Latitude. Key in the coordinate into Google Maps to see the location.

● GPS Real-Time Tracking by GPRS Setting:

- 1) Insert a GPRS enabled SIM card into the tracker.
- 2) Set up a *controller phone number*, by sending an SMS command format:
controller mobile phone number*0000*1*.

For example, ***12345678*0000*1****.

"12345678" is the **controller phone number** which is used to configure the tracker

"0000" is default user password

"1" is one of the 3 authorized *controller phone numbers* currently defined.

- 3) Activate GPRS mode by sending an SMS command: **7100000**
- 4) Define your Mobile Phone service provider's APN, command **#803#0000#APN Name#User name#password##**.
Note: For the APN without user name and password, please use command **#803#0000#APN Name##**
- 5) Instruct Tracker to send GPS Data to Server Fixed IP, such as **61.144.222.116**
By sending an SMS command: **#804#0000#61.144.222.116#2332##**
- 6) Setup user name, **#801#0000#Your SIM Number (excluded country code)##**
- 7) Setup upload interval while ACC ON, **#805#0000#60#1##**. 60 means GPS data is uploaded at every 60 seconds interval.
- 8) Setup upload interval while ACC OFF, **#809#0000#3600#1##**. 3600 means GPS data is uploaded at 1 hour interval.
- 9) Log in www.udrivetrack.com (or wap.udrivetrack.com) with valid "UserName" and "Password"

Useful SMS Commands:

The GPS Tracker is configured remotely by SMS commands. Each valid SMS command sent will get a reply message with status report or acknowledgement.

● Controller Phone Number

Format: *** controller phone number 4-20 figures * user password (4 figures) *Sequence number (1-3) ****
eg: ***13900000000*0000*1****

Remarks: Controller Phone number is authorized to configure the tracker, maximum 3 controller phone numbers are allowed. In the above example, the first controller number (marked as "1") is 13900000000.

● To Switch Tracking Mode to SMS Mode

Format: **700+ user password (4 figures)**

eg: 7000000

Reply: SET MODE OK, CURRENT MODE: SMS P2P

Remarks: When the tracker receives the SMS command with a valid password, it changes to

SMS Tracking mode.

- **Change User Password**

Format: **777+new password (4 figures) +old password (4 figures)**

eg: 77712340000

Reply: SET USER PASSWORD OK

Remarks: In the above example, instruction is given to change old password "0000" to new password "1234"

- **Power management** (GPS to turn ON, OFF on with Vibration Sensor mode)

- ◆ **ON the GPS**

Format: **222+user password (4 figures)**

eg: 2220000

Reply: GPS ON OK

Remarks: When the tracker receives the instruction with a valid password, it switches the GPS to active mode.

- ◆ **OFF GPS**

Format: **333+ user password (4 figures)**

eg: 3330000

Reply: GPS OFF OK

Remarks: When the tracker receives the instruction with a valid password, it switches off the GPS.

- ◆ **Power-saving mode**

The UDTTV02 has a built-in **vibration sensor** for power management. When the vibration sensor discovers that there is no movement for 5 minutes, it can automatically turn GPS off, useful to preserve vehicle battery life.

Once the vibration sensor is triggered, the tracker will resume GPS function as usual.

Format: **100+ user password (4 figures)**

eg: 1000000

Reply: VIBRATION SENSOR ON OK

Remarks: When the tracker receives the instruction with a valid password, vibration sensor function is activated.

- Request “Longitude and latitude” by SMS

Format: **666+ user password (4 figures)**

eg: 6660000

Reply: Location message as below

Data format:	Sample Message:
Lat: Latitude (+/-)	Lat:+22.54619
Long: Longitude (+/-)	Long: +114.12378
Speed: Speed KM/H	Speed: 0.00KM/H
Direction: Direction	Direction: 315.00
Date: Date YYYY-MM-DD	Date: 2008-04-25
Time: Time HH: MM: SS	Time: 16:39:45
BS: GSM Base Station information	BS: 25ee0dff
Fix: Location state (A/V)	Fix: A (A means received GPS signal, V means the low GPS signal, inaccurate position)
ID: IMEI	ID: 353686009002030
STATE: Tracker Status	STATE: SMS

While GPS does not detect satellite signal, it replies SMS as below:

eg: ERROR GPS GPRMC FRAME DATA

BS: 27971054”

ID: 353686009002030

STATE: SMS

- **Request “Google Maps URL Location” by SMS**

Format: **668+ user password (4 figures)**

eg: 6690000

Reply: Location message in [Google Maps URL link](#)

- **Timer for SMS tracking**

- ◆ **Activate timer tracking**

Format: **4 xx + user password (4 figures)**

eg: 4010000

Reply : TIMER START, REPEAT INTERVAK : X MINUTES

Remarks: The tracker would automatically sends location information to controller phone number at every X minutes interval. Reporting time is either in minutes or hours. In the above example, the device sends location information at every 1 minute interval with "STATE:TIMER". Minimum value is 1 minute and maximum value is 120 minutes.

- ◆ **Stop timer tracking**

Format: **400+user password**

Reply: TIMER STOP

- **Alarm Alert by SMS commands:**

- ◆ **Alert by SMS**

Format: **150 + user password (4 figures)**

eg: 1500000

Reply: SET VOICE CALL: OFF

Remarks: Activate device with Alarm Alert function (that is, Geo-fence, Panic button etc) by SMS.

- ◆ **Alert by both “Voice call and SMS”**

Format: **151 + user password (4 figures)**

eg: 1510000

Reply: SET VOICE CALL: ON

Remarks: Activate device with “Alarm Alert with Voice Call and SMS”. Voice Call is the factory default setting.

- **By Demand, GPS Location by Making Voice call**

Make a call to the Tracker. After 2-5 rings, "G{S Location information" will be sent to the controller phone with "STATE: SMS".

- **SOS button (Panic button)**

When the SOS button is pressed (hold down for more than 3 seconds), it will send "GPS Location" information to the controller phone number. Information sent includes "STATE: SOS". First of all, the tracker calls the first controller phone number. If the call is not answered (mobile off, out of coverage or no response), it will call the second number and then the third, until the call is answered.

- **Geo- Fence:**

- ◆ **Setup Geo-fence Area**

A geo-fence is defined by "latitude and longitude" base point of where it is and a permitted **radius** of travel from that point. If the vehicle travels outside this area the tracker will make a telephone call to the mobile phone that set the geo-fence as an alert. It will also send an SMS text including 'STATE: OS'. While it returns to Geo-fence area, it raise same alert with "State:RS". The tracker will repeat the above when the vehicle re-enters the geo-fenced area.

Command 1: Setup Geo-fence base point on certain Long and Lat.

Find the base point in Google Maps, you can obtain the current "longitude and latitude"

Now send the SMS command which includes the vehicles current location;

Format 1: **004+ user passwordE/Wddd.dddN/Sdd.dddRzzz.z**

e.g: 0040000E11406.0024S2233.4230R1.0

Remarks: E-- east longitude (+) ; W-- west longitude (-); N-- north latitude (+); S-- south latitude (-).

In this example, it uses E and N

Command 2: Take Current Location as Geo-fence base point

Format: **005+user password+Rzzz.z**

eg: 0050000R1.0

Reply: SET GEOFENCE OK

Remarks: In the example, it assumes current location as base point, with **radius 1.0km** as geo-fence area

- ◆ **Turn On/Off Geo-fence Alert**

To turn the geo-fence on, send the text command: **211 (Function) + password**

For example: 2110000

Reply: GEO-FENCE ON

Turn geo-fence off, send the text command: 210 (Function) + password

For example: 2100000

Reply: GEO-FENCE OFF

Remarks: Once the tracker moves out of the restricted area, it will send “GPs Location” information by SMS to controller phone number, with information, STATE: RS

● Battery low voltage alert

When the device detects internal battery with “low power”, it will send a SMS message to controller phone number with “GPS Location” information and with information, STATE:LP.

● Immobilizer

◆ Immobilizing A Vehicle

a. Command format: **900 + user password**

b. Confirm command format: **901 + user password**

Remarks: When the tracker receives an instruction to immobilize a vehicle, it will reply with a message:

"Confirm Power OFF?"

You need to “confirm action” by replying with an SMS command: **901 + user password**

● Tow alarm

◆ Activate tow alarm

Command: 008+user password+Rzzz.z (Range from 0.1 – 999.9 KM)

Example : 0080000R0.1 (Setting Tow alarm Radius Range 100 Meters)

Eg: 0080000R1.0

Reply: SET MOVE RADIUS OK

Description: After ACC Off, device record latest position data as base point, (the data will be collect in 3 minutes after ACC off) . For the example above, hen vehicle move out 1.0KM radius from base point, device will send location data message with STATE: ACC OS to controller phone. If device back to area within the radius, device send location message with STATE: ACC RS. This function was activated in pre-setting, with report radius 0.5km.

◆ Cancel tow alarm

Command: 009+user password

Eg: 0090000

Reply: MOVE DEFENGCE:OFF

Description: Device will stop raise tow alert.

◆ Recover Mobilization

- a. Turn power back command: **902 + user password**
- b. Confirm recovery command: **903 + user password**

Remarks: When the tracker receive an instruction to put “power back”, it will reply with a message:

"Confirm Power ON?"

Tou need to “confirm action” by replying with an SMS command: **903 + user password**

● Power Cut Alert

◆ Raise Alarm if External Power Source is Cut

Command: **011 + user password**

eg: 0110000

Reply: DEFENCE ON

Remarks: When external power source is cut, it will call the controller phone number and send location information message with STATE: DEF.

◆ Keep Silent if External Power Source is Cut

Command: **010+user password**

eg: 0100000

Reply: DEFENCE OFF

Remark: This will NOT trigger Alarm Alert when External Power source is Cut

Useful SMS Commands (Typically for Real-Time Monitoring, GPRS Mode):

● Switch to GPRS mode

Format: **710+ user password (4 figures)**

eg: 7100000

Reply: SET MODE OK, CURRENT MODE: GPRS

Remarks: When UDTTV02 tracker receives the SMS command with a valid password, it will automatically upload GPS Data to the Server.

- **Defining Mobile Phone Operator APN (Access Point Name)**

Format1: **#803#user password#APN##**

eg: #803#0000#CMNET##

Format 2: **#803#user password#APN#APN user name#APN password ##**

Reply: SET GPRS ACCOUNT OK

Remarks: Setup APN with **Format 1** if no APN user name and password is required
Use **Format 2** if APN user name and password are required

Note: The factory default APN is **CMNET**.

APN can consists of 3 to 35 alphabetic, numeric, dots (.) underscore (_) and connectors (-).

APN user name and user password consists of 3 to 20 the numeric and alphabetic.

- **Set up TCP/IP Server IP address and Port number**

Format: **#804#user password#fixed IP address # port ##**

eg: #804#0000#220.165.9.225#2332##

Reply: SET SERVER IP AND PORT OK

Remarks: Setup Server IP location and Network Port for GPRS data transmission.

- **Start Upload GPS Location Information via GPRS**

Format: **#806#user password##**

eg: #806#0000##

Reply: START GPRS UPLOAD

Remarks: Start Data Transmission to server.

- **Data Upload Interval (ACC ON /OFF)**

◆ **Data upload interval while ACC ON:**

Format: **#805#user password# T #N#**

eg: #805#0000#30#2##

Reply: SET GPS SAMPLING TIME AND QUANTITY OK

Remarks: In the above example, when ACC ON, the tracker collects position data every 30 seconds, uploads data to server every 2 data collected (1 minutes once).

Data collection interval 'T': minimum 10 seconds, maximum 59999 seconds.

Data uploads to Server while N units of coordinate collected, minimum value is 1, maximum 50.

◆ Upload interval while ACC Off:

Format: **#809#user password# T#N ##**

eg: #809#0000#1800#1##

Remarks: In the above example, when ACC OFF, the tracker collects position data every 1800 seconds, uploads data to server every 1800 seconds (1 data collected).
Data collection interval 'T': minimum 10 seconds, maximum 59999 seconds.
Data uploads to server while N units of coordinate collected, minimum value is 1, maximum 50.

Note: If the device does not detect a GPRS/GSM network, "GPs Location" Information will be saved in internal buffer, up to a 300 data can be saved.

● Data logger Function:

◆ Activate Data Logger Function

Format: **#807#user password#X##**

Eg: #807#0000#5##

Reply: SET SAMPLING OK

Remarks: In the above example, the device saves location data to internal memory at every 5 seconds interval.
When the device goes into power saving mode, it will stop record data.
The data logger is capable of saving up to 5000 "Location Information".

◆ Upload Data Captured by Data Logger to Server

Format: **#808#user password#Upload data for previous X hours##**

eg: #808#0000#24#

Reply: START UPLOAD 24H HISTORY RECORD

Remarks: Start uploading Data Captured 24 hours ago to Server, from now.

Appendix: Command List

Command	Sample	Description	Reply
*controller phone number 4-20 figures * user password (4 figures) *Sequence number (1-3) **	*13900000000*0000*1**	Set controller phone number	SET USER NUMBER 1 OK
700+Password	7000000	Start SMS tracking mode	SET MODE OK, CURRENT MODE: SMS P2P
710+Password	7100000	Start GPRS tracking mode	SET MODE OK ·CURRENT MODE :GPRS
004+PasswordE/Waaa.aaaaaN/Sbb.bbbbbb Rzzz.z	0040000E11406.0024S223 3.4230R1.0	Set geo-fence base point	SET GEOFENCE OK
005+PasswordRzzz.z	0050000R1.0	Set current location as geo-fence base point	SET GEOFENCE OK
010+Password	100000	Not raise alert while power source being cut off	DEFENCE OFF
011+Password	110000	Raise alert while power source being cut off	DEFENCE ON
100+Password	1000000	Power saving mode	VIBRATION SENSOR ON OK
150+Password	1500000	Raise alert by SMS	SET VOICE CALL: OFF
151+Password	1510000	Raise alert by voice call and SMS	SET VOICE CALL: ON
210+Password	2100000	Off geo-fence alert	GEO-FENCE OFF
211+Password	2110000	On geo-fence alert	GEO-FENCE ON
222+Password	2220000	On GPS receiver	GPS ON OK
333+Password	3330000	Off GPS receiver	GPS OFF OK
4xx+Password	4010000	Timer for SMS tracking	TIMER START, REPEAT INTERVAK : X MINUTES
666+Password	6660000	Request location by SMS	Coordinate message
668+ Password	6680000	Request location by SMS with Google map Link	Coordinate message
777+New Password+Old Password	77712340000	Change Password	SET USER PASSWORD OK

900+Password	9000000	Immobilize vehicle	Confirm Power OFF?
901+Password	9010000	Confirm immobilization	POWER OFF OK
902+Password	9020000	Recover mobilization	Confirm Power ON?
903+Password	9030000	Confirm recover mobilization	POWER ON OK
008+Paswword+Rzzz.z	0080000R100.0	Active tow alarm radius range 100 km	SET MOVE RADIUS OK
009+password	0090000	Cancel tow alarm	MOVE DEFENGCE:OFF
091+password	0910000	Raise alert while ACC ON/OFF	ACC STATE PROMPT:ON
090+password	0900000	Stop alert while ACC ON/OFF	ACC STATE PROMPT:OFF
#807#password#X##	#807#0000#10##	Start data logger function, record location message every x seconds	SET SAMPLING OK
#808#0000#X##	#808#0000#24##	Upload data in data logger to server	START UPLOAD XH HISTORY RECORD
#803#Password#APN##	#803#0000#internet##	Set APN	SET GPRS ACCOUNT OK
#803#Password#APN#APN username#APN pssword##	#803#0000#internet#guest #guest##	Set APN user name	SET GPRS ACCOUNT OK
#804#Password#server's IP#port##	#804#0000#220.165.9.225 #2332##	Set GPRS tracking sever IP and port	SET SERVER IP AND PORT OK
#805#Password#Save GPS data every “T” seconds#Upload data to server after "N" units message saved##	#805#0000#30#2##	Interval of GPS data upload to server while engine started	SET GPS SAMPLING TIME AND QUANTITY OK
#806#Password##	#806#0000##	Start upload GPRS data	START GPRS UPLOAD
#809#Password#Save GPS data every “T” seconds#Upload data to server after "N"units message saveded##	#809#0000#1800#1##	Interval of GPS data upload to server while engine stopped	GPRS REPORT SAMPLING 2 STOP
*RESET#password## °	*RESET#0000##	Reset to default setting	
*RESTART#password##	*RESTART#0000##	Restart device	
*GTAS#	*GTAS#	Read all setting	Setup details